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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,478	09/26/2003	Bertrand Lion	05725.1242-00	7403
22852	7590	05/03/2007		
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413			EXAMINER PEZZUTO, HELEN LEE	
			ART UNIT 1713	PAPER NUMBER
			MAIL DATE 05/03/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/670,478	Applicant(s) LION ET AL.	
	Examiner Helen L. Pezzuto	Art Unit 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 and 72-89 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35 and 72-89 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Claims 1-35, and 72-89 are currently pending in this application.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-35, and 72-89 are rejected under 35 U.S.C. 103(a) as being unpatentable over Galleguillos et al. (US-005) or Frechet et al. (US-855 or US-925) or Schimmel et al. (US-883) or Anton et al. (US-206) for the reasons of record.

US 6,410,005 B1 to Galleguillos et al. discloses AB block copolymer comprising a soft hydrophobic and a hard, hydrophilic blocks with two or more distinct glass transition temperatures, represented by Structures 1 and 2 (col. 4, lines 44-65). Specifically, prior art discloses a

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process of polymerizing a polyfunctional monomer X within the scope of the instant intermediate block (see col. 4, structures 1 and 2) with a first ethylenically unsaturated monomer(s) to form an A block, and subsequently polymerizing a second ethylenically unsaturated monomer(s) containing at least one carboxylic acid group with the A block to form a B block and the resultant block copolymer (col. 3, lines 53-60; col. 4, lines 18-43; col. 5, lines 2-4; col. 6, line 27 to col. 7, line 57). Absent of specific compositional and architectural details defined for the instant intermediate block, prior art -B-X-X-A- linkages in structures 1 and 2 fall within the scope of the instant intermediate block defined in the present claims. US-005 teaches average molecular weight of the resultant block copolymer within applicants' range (col. 5, lines 23-29; col. 22, Table 2), having film forming property and water dispersibility (col. 6, lines 3-5). Suitable hydrophobic monomer A includes the various (meth)acrylates,, (meth)acrylamides expressed in the present claims, with preferred species such as n-butyl acrylate, ethyl acrylate and 2-ethylhexyl acrylate which read on the instant low Tg monomeric species (col. 7, line 65 to col. 9, line 2). Patentees' preferred hydrophilic monomer B include

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ethylenically unsaturated carboxylic acid such as (meth)acrylic acid, which along with the disclosed alkyl methacrylates, clearly fall within the scope of the instant block having Tg greater than or equal to 40°C (col. 10, line 57 to col. 11, line 30). Prior art specifically disclose using mixtures of A and B monomers so as to achieve the desired balance of the resultant block polymer properties (col. 12, lines 12-15).

US 6,663,855 B2 and US 6,685,925 B2, both to Frechet et al. (reference will be made with respect to US-855 primarily) discloses a block copolymer comprising a core polymer and two or more flanking polymers, wherein at least one of the flanking polymers is a copolymer derived from two or more monomers (abstract). Specifically, prior art block copolymer may have the linear structure of $(AB)_n$ -Core, wherein at least one of blocks A and B comprises two or more monomers is hydrophobic and hydrophilic. Typically, component A is a hard block having a high Tg (i.e. preferably from 30 to 150°C), and component B is a soft block having a low Tg (i.e. preferably from 175 to less than 30°C) (col. 3, line 66 to col. 4, line 36). The respective monomer components made up the core and flanking

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polymers are selected to produce a block polymer with balanced hydrophilic/hydrophobic characteristic (col. 4, lines 55-57). Prior art discloses Mn and Mw of the respective core and flanking polymers within the claimed range. A molar ratio of the core polymer to the flanking polymer from 1:10 to 10:1 is further suggested (col. 5, lines 1-15). Suitable monomers for the core and flanking polymers are taught within the scope of the present claims (col. 7, line 6 to col. 9, line 49). In the embodiment of A-B-A block copolymer, prior art teaches the transition from each A block to B block maybe tapered such that there may be a gradual compositional change from A block to B block. Furthermore, there may be several monomers in a single block or there may be one or more blocks of random copolymer, referred as to the R block. Prior art discloses polymer architecture of A-R-B-A, A-R-B-R-A, wherein R is random blocks of monomers A and B (US-855, col. 10, lines 13-50). Accordingly, the instant block copolymer comprising at least one first block, second block, linked together via an intermediate block comprising at least one constituent monomer of the at least first block and at least one constituent monomer of the at least one second block are taught within the scope of prior art block copolymer.

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US 6,197,883 to Schimmel et al. discloses a coating composition comprising a block copolymer flow control agent. Prior art block copolymer contains at least a first and a second block, wherein the Tg of second block is at least 20°C greater than that of the first block. Suitable first and second block monomers are derived from C₁-C₂₀ alkyl (meth)acrylates (col. 4, lines 22 to col. 6, line 10). Prior art discloses the inclusion of a minor amount of at least one hydroxyl functional ethylenically unsaturated monomer (i.e. hydroxyalkyl (meth)acrylate) in each of the first and second blocks, in a random or gradient fashion (col. 6, lines 11-41). The block copolymer is preferably produced by ATRP method wherein the instant polydispersity index is clearly obtainable (col. 8, line 56 to col. 9, line 3). A triblock copolymer (IBMA/HPMA)-(2-EHMA/HPMA)-(DMAEMA/HPMA) is exemplified in Example A (col. 23), which meets the requirement of the present block copolymer as defined in the present claims.

US 6,153,206 to Anton et al. discloses a cosmetic composition comprising a synthetic polymer having a first repeating unit derived from methacrylic ester monomer having Tg of -10 to 75°C, and a second repeat unit derived

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from methacrylic ester monomer having Tg of 76 to 120°C. The resulting polymer can be a block copolymer having a Tg in the range of about 20 to 105°C (col. 2, lines 8-23).

Suitable methacrylic ester monomers used as first and second repeating units fall within the scope of the first and second block monomer species expressed in the present claims (col. 3, line 56 to col. 4, line to col. 5, line 54). Prior art block copolymer and random copolymer architectural representatives shown at col. 4, lines 28-60, embrace the instant block polymer as defined in the present claims.

Prior art discussed above provide clear disclosures regarding the method and the selection of various monomers species in formation block copolymer systems having balance of hydrophilic/hydrophobic properties. The selection of hard and soft block components with differences in glass transition temperature is suggested within the scope of the present claims. Accordingly, one skilled in the art would have readily envisaged the selection of the suitable monomers having Tg differences as taught, motivated by the reasonable expectation of success in forming block copolymers with balanced hydrophilic/hydrophobic

characteristics. Once the respective monomer block components are suggested with Tg consideration, the determination of their optimum proportion or workable ranges would involve only routine skill in the art. Thus, rendering obvious the present claims.

Response to Arguments

Applicant's remarks filed on 2/12/07 have been fully considered but are not found to be persuasive. The examiner remains of the position that taken the broadest interpretation of the present claims, prior art disclosures teach the recited block polymer. In Galleguillos et al. (US-005), structures 1 and 2 at col. 4 define a copolymer containing blocks of $-(B)_p-X-(B)_q-$, and $-(A)_n-A-X-A-(A)_n-$, wherein X is a multifunctional monomer that links A and B block. The linkage of X-X reads on the instant intermediate block, wherein X is also a constituent monomer of the A and B blocks in $-(B)_p-X-(B)_q-$, and $-(A)_n-A-X-A-(A)_n-$. In Frechet et al. (US-925 and US-855), applicant's attention is directed to US-925, col. 9, lines 30-67 or US-855, col. 10, lines 13-50. prior art discloses an embodiment of A-B-A block copolymer which may have an architecture of A-R-B-A or A-R-B-R-A, wherein R is defined as random blocks of monomers A and B. Furthermore, patentees suggest the random

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block may have a compositional gradient of one monomer to the other (i.e. A:B) that varies across the random block. Thus, prior art disclosure clearly suggest R contains a constituent monomer of the A and B block as presently claimed, and hence, embracing the instant intermediate block. In the Schimmel et al. (US-883) reference, disclosure at col. 6 (lines 11-41) teaches first and second blocks of the copolymer to contain minor amounts of a hydroxyl functional ethylenically unsaturated monomer (i.e. hydroxyl (meth)acrylate in both blocks. This hydroxy functional monomer may independently occupy as one or more blocks at any position within either or both of the first and second block in a random fashion or a gradient fashion. This would allow the permutation of the recited block copolymer, wherein the hydroxyl functional monomer randomly occupy the first and second block, as well as in the middle of the block. Finally, regarding the Anton et al. (US-206) reference, the disclosure at col. 4 teaches possible architecture of block and random block polymer containing blocks of first and second repeating units with random blocks containing first and second repeating units dispersed between the respective blocks. Thus, encompassing

the presently claimed block copolymer. Accordingly, the examiner's position is maintained.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

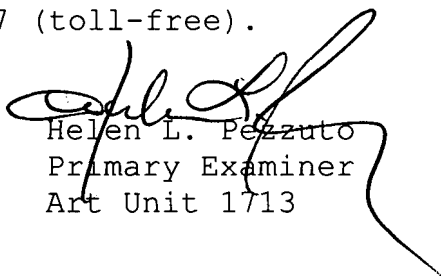
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen L. Pezzuto whose telephone number is (571) 272-1108. The examiner can normally be reached on 8 AM to 4 PM, Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization

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where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Helen L. Pezzuto
Primary Examiner
Art Unit 1713

hlp